# VHIM-2GT-L3

# 1000BASE-T

# GIGABIT ETHERNET

# EXPANSION MODULE

## QUICK INSTALLATION GUIDE

ENTERASYS NETWORKS™

9033695-01

**NOTICE!** ONLY QUALIFIED PERSONNEL SHOULD PERFORM INSTALLATION PROCEDURES.

Enterasys Networks reserves the right to make changes in specifications and other information contained in this document without prior notice. The reader should in all cases consult Enterasys Networks to determine whether any such changes have been made.

The hardware, firmware, or software described in this manual is subject to change without notice.

IN NO EVENT SHALL ENTERASYS NETWORKS BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO LOST PROFITS) ARISING OUT OF OR RELATED TO THIS DOCUMENT, WEB SITE, OR THE INFORMATION CONTAINED IN THEM, EVEN IF ENTERASYS NETWORKS HAS BEEN ADVISED OF, KNEW OF, OR SHOULD HAVE KNOWN OF, THE POSSIBILITY OF SUCH DAMAGES.

Enterasys Networks, Inc.
500 Spaulding Turnpike
Portsmouth, NH 03801

© 2002 Enterasys Networks, Inc.
All Rights Reserved
Printed in the United States of America

Order Number: 9033695 March 2002

LANVIEW is a registered trademark of Enterasys Networks. ENTERASYS NETWORKS, NETSIGHT, MATRIX, WEBVIEW, and any logos associated therewith, are trademarks of Enterasys Networks.

SPECTRUM is a registered trademark of Aprisma Management Technologies, Inc.

All other product names mentioned in this manual may be trademarks or registered trademarks of their respective companies.

## FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**WARNING:** Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### INDUSTRY CANADA NOTICE

This digital apparatus does not exceed the Class A limits for radio noise emissions
from digital apparatus set out in the Radio Interference Regulations of the Canadian
Department of Communications. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

## VCCI NOTICE

この装置は，情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

### Class A ITE Notice

WARNING: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### EC CONFORMANCE DECLARATION

European contact:
Enterasys Networks Ltd.
Nexus House, Newbury Business Park
London Road, Newbury
Berkshire RG14 2PZ, England

This information technology product complies with ISO/IEC Guide 22 and EN45014. It conforms to the following specifications:
EN55022(1988)/CISPR-22(1985) Class A
EN50082-1: IEC 1000-4-2, 3, 4, 6
This information technology product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/ EEC and carries the CE Mark accordingly.

## SAFETY WARNING

Before installing or removing the VHIM-2GT-L3, first disconnect the switch from the main power supply. For full safety instructions, please refer to the user guide that accompanies the switch.

### Warning:

Optical Safety for Fiber Optic Modules

**CLASS I LASER DEVICE**

When using a fiber optic media expansion module, never look at the transmit laser while it is powered on. Also, never look directly at the fiber TX port and fiber cable ends when they are powered on.

### Avertissment:

Ports pour fibres optiques –sécurité sur le plan optique

**DISPOSITIF LASER DE CLASSE I**

Ne regardez jamais le laser tant qu'il est sous tension. Ne regardez jamais directement le port TX (Transmission) à fibres optiques et les embouts de câbles à fibres optiques tant qu'ils sont sous tension.

### Warnhinweis:

Faseroptikanschlüsse – Optische Sicherheit

**LASERGERÄT DER KLASSE I**

Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist.
Niemals direkt auf den Faser-TX-Anschluß und auf die Faserkabelenden schauen, während diese eingeschaltet sind.

## SPECIFICATIONS

**Ports** 2 1000Base-T
**Communication Mode** Half or full duplex, auto-negotiation for duplex mode and flow control
**Network Interface** RJ-45 connector, Cat. 5e Ethernet cable
**Switch Method** Store-and-forward
**Size** 4.82 x 3.57 x 1.08 in.
(12.25 x 90.70.5 x 2.74 cm)
**Power Consumption** 2.4W maximum
**Temperature** Operating: 32° to 131° F (0° to 55° C)
Storage: -40° to 131° F (-25° to 55° C)
**Humidity**
Operating: 5% to 95%
**Emissions**
FCC Class A, VCCI class A, BSMI class A
EN55022 Class A, C-Tick class A, CE Mark
**Immunity**
IEC 1000-4-2/3/4/6
**Standards** IEEE 802.3ab Gigabit Ethernet
ISO/IEC 8802-3

**CABLE TYPES AND SPECIFICATIONS**

| Cable | Type | Max. Length | Connector |
|---|---|---|---|
| 10Base-T | Cat. 3,4,5 100-ohm UTP | 100 m (328 ft.) | RJ-45 |
| 100Base-T | Cat. 5 100-ohm | 100 m (328 ft.) | RJ-45 |
| 1000Base-T | Cat. 5e 100-ohm | 100 m (328 ft.) | RJ-45 |
| 1000Base-SX | 50/125 µm or 62.5/125 µm multimode fiber | See table below | SC or ST |
| 1000Base-LX | MMF or SMF | See table below | SC or ST |

**1000Base-SX Fiber**

| Diameter | Bandwidth | Range |
|---|---|---|
| 62.5/125 µm MMF | 160 MHz/km | 2-220 m (7-722 ft.) |
| | 200 MHz/km | 2-275 m (7-902 ft.) |
| 50/125 µm MMF | 400 MHz/km | 2-500 m (7-1641 ft.) |
| | 500 MHz/km | 2-550 m (7-1805 ft.) |

**1000Base-LX Fiber**

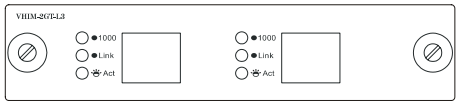
| Diameter | Bandwidth | Range |
|---|---|---|
| 9 µm SMF | N/A | 2 m – 5 km (16,404 ft.) |
| 62.5/125 µm MMF | 500 MHz/km | 2-550 m (7-1805 ft.) |
| 50/125 µm MMF | 400 MHz/km | 2-550 m (7-1805 ft.) |
| | 500 MHz/km | 2-550 m (7-1805 ft.) |

**Note:** Network diameter is defined as the wire distance between two end stations in the same collision domain.

## VERTICAL HORIZON FAST ETHERNET SWITCH

### 1000BASE-T GIGABIT ETHERNET EXPANSION MODULE

Enterasys's VHIM-2GT-L3 1000Base-T Gigabit Ethernet Expansion Module provides two Gigabit ports that can be used for a high-speed backbone or server connections. It contains two 1000Base-T ports that can be connected to a site up to 100 m (328 ft) away with Cat. 5 Ethernet cable.




## Gigabit Port LEDs

Gigabit port LEDs are located on the front panel of the module, to the left of the represented port. These LEDs provide port status for "at-a-glance" network monitoring. The following table details the indicator functions provided by the VHIM-2GT-L3:

| Expansion Module LEDs | | |
|---|---|---|
| **LEDs** | **Condition** | **Status** |
| 1000 | Steady Green | Port operating at 1000Mbps in Full duplex mode |
| Link | Steady Green | A valid link has been established on the port. |
| Act | Flashing | Traffic is passing through the port. |

## INSTALLING THE MODULE

**CAUTION:** The VHIM-2GT-L3 module is designed for the VH-2402-L3 switch only. Do not try to install this module in any other units.

The VHIM-2GT-L3 Expansion Module installs in the expansion slot on the front panel of the VH-2402-L3 switch. To install the module, follow the instructions below.

## Equipment Checklist

After unpacking the VHIM-2GT-L3 Expansion Module, check the contents of the box to be sure you've received the following items:

- One VHIM-2GT-L3 Expansion Module
- This document

## Handling the Module

**CAUTION:** The VHIM-2GT-L3 Expansion Module can easily be damaged by electrostatic discharge. To prevent electrostatic damage, observe the following guidelines:

- Do not remove the module from its packaging until you are ready to install it.
- Do not touch any of the module's pins, connectors or components.
- Hold the module only by its edges or front panel.
- Wear an anti-static wristband connected to a suitable earth ground whenever handling the module.
- Store or transport this module only in appropriate anti-static packaging.

## Instructions

**CAUTION:** The switch must be powered off before installing or replacing any module.

1. **Power off the switch:** Disconnect the AC power cord from the switch. If a redundant power unit (RPU) is present, disconnect its DC cable connection to the switch.

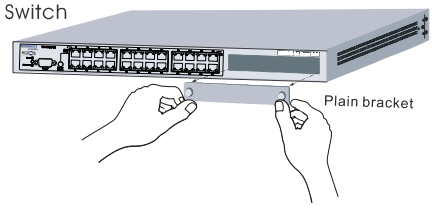
2. **Remove network cables:** If you are replacing a module, remove the cable attached to the port on the module.

3. **Loosen the screws on the installed module or slot faceplate:** Using your fingers or a flat head screwdriver, turn the screws securing the module (or faceplate on the slot) in a counter-clockwise direction until they are free of the chassis. Be sure not to completely remove the screws from the module or faceplate.

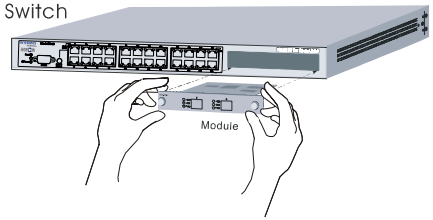
4. **Remove the installed module or faceplate:**

   Firmly pull on the screws until the module is free of the switch. Carefully slide the module straight out of the slot.

   Keep the original faceplate for future use. If you should remove the module, replace the faceplate to prevent dust and debris from entering the unit and to maintain proper air flow.

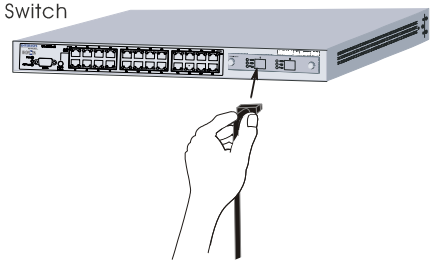



5. **Insert the new module into the switch:** Holding the new module with the text on the front panel upright, carefully slide the module into the switch slot and press gently until it snaps into place. Be sure the new module's front panel is flush with the switch panel.




6. **Secure the new module:** Secure the new module in place by screwing the attached screws clockwise into the switch's chassis. Tighten them enough to secure the module, but not so tight as to prevent them from being unscrewed by hand.

7. **Connect the network cable:** Connect Ethernet cable to the port on the newly installed module. See "Connectivity Guidelines" in this guide for further information.




8. **Power on the switch:** Reconnect the previously removed power sources to the switch. The switch's front-panel LEDs should indicate the status of the new connection. Check the LED indicators for the Gigabit port to ensure that they are operating correctly. Refer to the table of LEDs in this guide for a description of the LED indications. If the module does not respond, see "Troubleshooting" below.

More details concerning connection options and network applications can be found in the VH-2402-L3 Installation Guide. Information on the module's configuration options can be found in the Management Guide that is included with the base unit.

## TROUBLESHOOTING

If you experience any problems with the module, check the following items before contacting Enterasys's Technical Support:

- Ensure the VH-2402-L3 switch with the Gigabit Expansion Module is powered up.
- Ensure that the device attached to the module is powered up and operating correctly.
- Ensure that the module is properly seated in the slot.
- Verify that the attached device is configured to match the communication mode used by the module (1 Gbps, and half or full duplex).
- Check the connectors on both ends of the cable to be sure they are properly engaged.